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JAMES E. DUNSTAN
Admitted in VA and DC

Our File No.
0040-113-63

November 7, 1997

Mr. William F. Caton
Acting Secretary
Federal Communications Commission
1919 M Street, N.W.
Washington, DC 20554

Re: KOLO-TV
Further Comments Of KOLO-TV

Dear Mr. Caton:

Transmitted on behalf of the Stephens Group, Inc. are an original with four (4) copies of its "Further Comments Of KOLO-TV," in the above reference matter. Copies of the pleading are also being delivered to each of those listed on the attached Certificate of Service.

If there any questions concerning this matter, kindly communicate directly with this office.

Sincerely yours,

James E. Dunstan

JED/cew
Attachments

Before The

Federal Communications Commission

Washington, D.C. 20554

In The Matter Of	)	
	)	
Advanced Television Systems	)	
and Their Impact Upon the	)	
Existing Television Broadcast	)	MM Docket No. 87-268
Service	)	

TO: The Commission

FURTHER COMMENTS OF KOLO-TV

Stephens Group, Inc., licensee of KOLO-TV ("KOLO-TV"), NTSC Channel 8, Reno, Nevada, hereby files these Further Comments concerning the Reply To KOLO-TV's Opposition, filed by Sierra Broadcasting ("Sierra") on October 3, 1997, seeking to substitute DTV Channel 9 at Slide Mountain, Nevada (Reno) for DTV Channel 33, at its present transmitter location, as set forth in the Table of Allotments contained in the Commission's *Sixth Report and Order* in this proceeding.[1] Several significant misstatements in Sierra's Reply require further engineering elaboration, lest the Commission make a significant blunder in allocating DTV channels which could result in significant loss of service and future interference.

In support of these Further Comments, KOLO-TV submits:

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[1] *Sixth Report and Order*, MM Docket No. 87-268, adopted April 3, 1997, FCC 97-115 (released April 21, 1997).

I. INTEFERENCE ISSUES SHOULD NOT BE IGNORED

A. Sierra's Proposal Violates Bureau Processing Procedures

Sierra first claims that it need not consider the interference impact that allocating DTV Channel 9 on Slide Mountain would have on KQED, San Francisco, because KQED meets the full spacing requirements. Sierra Reply, pp. 2-3. What Sierra continues to overlook, however, is the Bureau's policy of requiring stations which wish to change transmitter sites to demonstrate no new interference within the 300 kilometer cell site to transmitter spacing criteria (for co-channel stations) used to allocate DTV channels in the first instance. The attached Hammett & Edison Engineering Exhibit discusses this in more detail. Thus, it appears that Sierra is trying to do through the allocation process would it cannot do through the amendment process – move its transmitter site some 31 kilometers, causing new interference to KQED.

B. Sierra's Proposal Assumes A Waiver Of The Directional Antenna Rules

Sierra's proposed "fix" to any interference itself raises additional issues.[2] According to the attached engineering statement, the new directional antenna proposed by Sierra would require a waiver of Section

[2] As the attached Engineering Statement points out, even Sierra's latest "fix" of using a highly directional antenna does not eliminate the interference to KQED. Indeed, KQED will still suffer loss of service to close to 100,000 persons, or 1.8% of its viewers, well above a one percent *de minimis* threshold.

73.685(e) of the FCC's Rules, which limits the minimum-to-maximum ratio of VHF directional TV antennas to 10 dB, since the proposed antenna would have a ratio of 15.7 dB. The Commission has long held that VHF directional TV antennas could not exceed a ratio of 10 dB minimum-to-maximum ration. *Sixth Report On Television Allocations*, 1 RR 599, 672 (1952).

> As for suppression ratios in excess of 10 dB it is clear that as the nulls become deeper the direct signal in the null direction becomes weaker with reference to ghost signals from reflecting sources which are not exactly in the null direction. Consequently if excessively deep nulls are used, the quality of service may be degraded due to those images in addition to the accompanying reduction of service range in the null direction. Until we are assured that these problems will not exist, the Commission is of the opinion that directional antennas with more than 10 dB ratio should not be permitted even for the purpose of improving service in a community where an assignment has been made in the Table of Assignments, based on non-directional operation.

Id. Neither the laws of physics nor the Commission's opinion as to television directional antennas has changed in the last 45 years. In 1989, the Commission contemplated relaxing its limit on directional antennas, but again concluded that there was still insufficient evidence that television stations could operate with highly directional antennas above 10 dB difference. *Television Broadcast Stations Technical and Operational Regulations*, 65 RR 2d 1820, 1827 (1989) (FCC still has "little

factual information [as] to the actual performance of antennas employing extreme suppression").

In many ways, the Commission of today is in the same position as the Commission of 1952 – trying to introduce a new service with unknown propagation patterns. It adopted the suppression limit of 10 dB in 1952 to ensure adequate television service, and given the 45 year track record of no indication that higher ratios can be used (except in cases over water or facing a mountain range), that limitation remains in place today. Now, however, Sierra wishes the Commission to modify its Table of Allotments to allow Sierra to use Channel 9, and justifies this based on its claim that it can use a highly directional antenna to avoid interference. If greater than 10 dB ratios haven't been proven to work in the mature NTSC television service, why should the Commission assume that it will fair any better in a DTV world? Given the tremendous unknowns which will challenge the broadcast industry in converting to digital, heaping on the unknown impact of a highly directional antenna invites disaster. The Commission should reject Sierra's request on this basis.

II. THE SIGNIFICANT PROBABILITY OF ADJACENT INTERFERENCE MILITATES TOWARD GRANTING KOLO DTV CHANNEL 9 IF THAT CHANNEL IS TO BE USED IN THE RENO MARKET

Sierra claims in its Reply that there is no reason why adjacent NTSC and DTV channels should be granted to the same entity. To prove this, Sierra cites to several instances in the Los Angeles market where adjacent channels were allocated to different licensees. Sierra Reply, pp. 3-4. Sierra simply ignores what the FCC said in its *Sixth Report & Order*, however. There, the Commission stated that

> [I]n those cases where it is necessary to use adjacent channels in the same area, the Table ***pair and co-locates*** adjacent NTSC and DTV channels to the extent possible. Furthermore, we are requiring that the adjacent channel DTV and NTSC carrier frequencies be locked to a common reference frequency.

Sixth Report & Order, ¶195 (emphasis added). By "pairing" the FCC makes clear that that means the same owner will use both frequencies. While Sierra points to one example where that may not have been possible, there are many more instances in the Table of Allotments where the adjacent channels were co-located ***and paired.***[3] Thus, the

---

[3] Of the approximately 110 television stations allocated to states beginning with "A" (Alaska, Alabama, Arkansas, and Arizona), twelve have allocations which involve the same owner operating a DTV channel as the upper adjacent channel to their current NTSC allocation. This represents some 11 percent of all allocations for those states. The table below sets forth those allocations:

Commission has paired upper DTV channels with lower NTSC channels far more often than assigning the upper DTV channel to a different licensee. Moreover, Sierra has not indicated why Channel 9 could not be paired with Channel 8 and assigned to KOLO, other than that Sierra would rather have Channel 9, and find a way to get onto the preferred transmitter location on Slide Mountain.

The attached Engineering Statement also makes clear why adjacent channels should be paired, especially where the DTV channel is the upper adjacent channel of the two. The requirement that the upper digital frequency be 5.082138 Mhz above the lower NTSC frequency,[4] with only a 3 Hz tolerance, is not going to be an easy requirement to meet, especially given the fact that the frequency tolerance for the lower NTSC signal is 1000 Hz.[5] In other words, the upper DTV channel will not only have to stay within 3 Hz of the lower NTSC signal, but it will also have to track that lower frequency as it fluctuates. The technical solution, as pointed out in the attached engineering statement, is to

Table 1: DTV Assignments to "A" States with upper adjacent DTV Channel

City of License	NTSC Channel	DTV Channel		City of License	NTSC Channel	DTV Channel
Bessemer, AK	17	18		Jonesboro, AR	48	49
Gadsden, AL	44	45		Little Rock, AR	11	12
Huntsville, AL	31	32		Little Rock, AR	42	43
Huntsville, AL	48	49		Pine Bluff, AR	38	39
Montgomery, AL	45	46		Tolleson, AZ	51	52
Tuscaloosa, AL	33	34		Tuscson, AZ	27	28

[4] *Sixth Report & Order*, n.357.
[5] 47 C.F.R. § 73.1545.

hardwire, or "slave" the two transmitters together. The alternative of using an off-air pickup affords a much higher chance of the DTV signal being more than 3 Hz off.

KOLO remains deeply concerned that a Channel 9 DTV operation not under its control has the potential to significantly impact its NTSC operations on Channel 8 during the transition period.

WHEREFORE, the above premises considered, KOLO-TV hereby requests that the Commission reject the request by Sierra to allocate DTV Channel 9 to Reno, assign it to Sierra, and allow Sierra to operate this channel from Slide Mountain.

Respectfully submitted,

STEPHENS GROUP, INC.

By _____
James E. Dunstan
Its Attorneys

HALEY, BADER & POTTS P.L.C.
Suite 900
4350 North Fairfax Drive
Arlington, VA 22203-1633
703/841-0606

November 7, 1997

CERTIFICATE OF SERVICE

The undersigned, an employee of Haley, Bader & Potts P.L.C. hereby certifies that the foregoing "Further Comments of KOLO-TV" was mailed by first class mail to the following on this 7th day of November, 1997, except as otherwise indicated.

Keith Larson *
Chief
Office of Engineering
Federal Communications Commission
1919 M Street, N.W., Room 314
Washington, DC 20554

James R. Bayes, Esquire
Jerry V. Haines, Esquire
Wiley, Rein & Fielding
1776 K Street, N.W.
Washington, DC 20006
Attorney for Sierra Broadcasting Corporation

By Crystal E Williams
Crystal E. Williams

* Delivery by hand.

Station KOLO-TV
NTSC Channel 8
Reno, Nevada

Engineering Exhibit in Support of Response to Reply to Opposition to Supplemental Petition for Reconsideration

October 15, 1997

HAMMETT & EDISON, INC.
CONSULTING ENGINEERS
SAN FRANCISCO

Station KOLO-TV • NTSC Channel 8 • Reno, Nevada

Statement of Dane E. Ericksen, P.E., Consulting Engineer

The firm of Hammett & Edison, Inc., Consulting Engineers, has been retained by Stephens Group, Inc., licensee of Station KOLO-TV, NTSC Channel 8, Reno, Nevada, to prepare an engineering exhibit in support of a Response to the Reply comments of Sierra Broadcasting Company to the Opposition of KOLO-TV to the Sierra request that its DTV allocation be changed from D33 to D09.

Background

Sierra Broadcasting ("Sierra") is the licensee of TV Station KRNV, NTSC Channel 4, Reno, Nevada. On September 8, 1997, Sierra filed supplemental comments to its earlier-filed Petition for Reconsideration to the Sixth Report & Order ("Sixth R&O") to MM Docket 87-268 ("DTV Table of Allotments"). In that supplement, Sierra requested substitution of DTV Channel 9 for the DTV Channel 33 assigned to KRNV by the Sixth R&O, and additionally requested that DTV Channel 9 be located at Slide Mountain, some 31 kilometers from the KRNV NTSC transmitter site at Red Peak, and also much greater in height than the KRNV NTSC transmitter site at Red Peak.

On September 23, 1997, KOLO-TV filed in opposition to the KRNV proposal, pointing out that, even though the proposed site at Slide Mountain would be fully spaced to TV Station KQED, NTSC Channel 9, San Francisco, California, new interference to 284,387 persons within the KQED Grade B contour would be predicted to be caused by use of DTV Channel 9 at Slide Mountain. It was pointed out that this represented a significant 5.2% of the KQED Grade B population. The KOLO-TV Opposition further noted that, because of the exceptional height of Slide Mountain (almost 10,000 feet in elevation), meeting the 273.6-kilometer co-channel DTV-to-NTSC spacing require of Section 73.623(d)(1) of the FCC Rules was not sufficient to guarantee no new interference to KQED. Finally, the KOLO-TV Opposition requested that, if the Commission deemed that the only interference protection to which KQED was entitled was that afforded by the separation requirement of Section 73.623(d)(1), and that therefore KQED must accept the new interference that use of DTV Channel 9 at Slide Mountain would cause, then there would be a technical advantage to allocating DTV Channel 9 instead to KOLO-TV, whose NTSC transmitter is already located at Slide Mountain. This meets the FCC presumption of collocation, since KOLO-TV operates on NTSC Channel 8, and would make it easier for the precise 5.082138 MHz ±3 Hz frequency relationship that must exist between an upper-adjacent DTV channel to an NTSC channel to be maintained.

Errors in the Sierra Reply to the KOLO-TV Opposition

On October 6, 1997, Sierra filed a Reply to the KOLO-TV Opposition. There are multiple errors in the Sierra Reply. First, it is not correct, as Sierra claims, the KOLO-TV Opposition "failed to note, however, that Sierra's proposed Channel 9 location would be fully consistent with the new spacing rules." Line 16 on the very first page of my September 23, 1997, engineering statement clearly stated that the proposed Slide Mountain location would be fully spaced to KQED. Second, my engineering statement never claimed that KOLO-TV's use of DTV Channel 9 at Slide Mountain would not also cause interference to KQED, just as Sierra's use of DTV Channel 9 at Slide Mountain would; rather, my statement noted that if the Commission decided that the only protection to which KQED is entitled is based on spacing, then it would make more technical sense to award that upper-adjacent DTV channel to KOLO-TV rather than to KRNV, as the KOLO-TV NTSC Channel 8 transmitter would then be collocated with the DTV Channel 9 transmitter, making it easier to maintain the necessary precise frequency separation. Where the NTSC and DTV transmitters would be in the same building, a hard-wired connection is possible between the two transmitters, thus "slaving" the frequency of one transmitter to the other. In contrast, if DTV Channel 9 were instead to be assigned to Sierra, and therefore located at a separate site at Slide Mountain, some form of off-air pickup of the KOLO-TV signal by Sierra would be required, so Sierra could frequency lock its DTV Channel 9 signal to the KOLO-TV NTSC Channel 8 signal. Therefore, the statement by Sierra's new consulting engineer, that "from an engineering point of view, there is absolutely no reason why KOLO-TV would be preferred for the allocation as proposed to Sierra," is simply wrong.

Ambiguity Whether Fully-Spaced Stations Require Interference Studies

Sierra's point about Paragraph 221 of the Sixth R&O appearing to require no detailed interference studies for fully-spaced stations is well-taken; this same point was raised in the June 16, 1997, Hammett & Edison Reconsideration Petition, at Paragraph 19, where we asked for confirmation of that assumption. However, it has been our experience that TV Branch Staff will not process NTSC minor change applications unless all DTV stations within the greater search distances used in the OET computer program to derive the DTV Table of Allotments are demonstrated to not be impacted, even though those stations may be fully spaced on a transmitter-to-transmitter basis. The greater search distance that the OET program used for the N+0 (*i.e.*, co-channel) situation was a 300-kilometer cell site-to-transmitter spacing criteria, as opposed to the 273.6-kilometer transmitter-to-transmitter spacing criteria used in Section 73.623(d)(1). In this case, the distance from the closest KQED cell to the proposed KRNV site at Slide Mountain is approximately

160 kilometers, thus triggering inclusion of KQED as a station requiring consideration under the OET computer program criteria.

Sierra Gives No Substantiation of Its Basis for Claiming that the KQED Interference Study Was "Incorrect" But Proposes New Directional Antenna

Sierra's consulting engineer flatly claims that the DTV Channel 9 at Slide Mountain-to-KQED interference study provided in my September 23 engineering exhibit was "not correct," but gives no basis for that allegation. I have reviewed that interference study and still believe it to be correct. That study used precisely the calculation protocols mandated in the Sixth R&O and in OET Bulletin No. 69. Nevertheless, Sierra has now proposed a different directional antenna pattern, with an additional 8 dB of suppression towards KQED, and states that this modified antenna pattern will be filed with the Commission "within the next week."

As shown by the attached Figure 1, the new directional pattern now proposed by Sierra has a maximum-to-minimum ratio of 15.7 dB, whereas the previously proposed pattern had a maximum-to-minimum ratio of only 7.9 dB. This new pattern therefore violates Section 73.685(e) of the FCC Rules, which limits the minimum-to-maximum ratio of VHF directional TV antennas to 10 dB. The Sixth R&O was unclear whether the directional pattern limits of 73.685(e), 10 dB at VHF, 15 dB at UHF, also apply to DTV directional antennas. Resolution of this issue was requested at Paragraph 25 of the Hammett & Edison Reconsideration Petition. If the Commission decides that 73.685(e) does apply to DTV directional antennas, Sierra will have to obtain a waiver to use a directional antenna with a 15.7 dB maximum-to-minimum ratio.

Sierra's Revision of Antenna Height and Conflicting Response Regarding Site Coordinates

With regard to the underground center-of-radiation problem addressed in the KOLO-TV Opposition, or, alternatively, inaccurate coordinates, Sierra on the one hand states that the specified coordinates were correct, but then in the next sentence admits "it is not known if the station will actually be located at those exact coordinates." One would expect that either the specified coordinates in the Sierra Supplemental Petition are correct, or they are not. Furthermore, Sierra should have known that reliance on the 3-second digitized terrain database to derive its proposed center-of-radiation height is not sufficiently accurate for site elevation determination purposes, which the Commission made clear in the Tower Registration docket (WT Docket 95-5) must be reported to an accuracy of at least the nearest meter.

Revised Facilities Would Still Cause Interference to KQED

Based on the revised directional antenna pattern now proposed by Sierra, and also using the greater height of 2,964 meters AMSL now conceded by Sierra, I have re-checked the interference situation. That interference study shows that, while the interference to KQED, is indeed reduced, from 284,387 persons to 96,538 persons, it is certainly not eliminated, as Sierra optimistically assumed. Further, while the modified antenna pattern does reduce the portion of the KQED Grade B population that would receive interference from D09 at Slide Mountain from 5.2% to 1.8%, even this reduced percentage fails to meet the 1% "*de minimus*" criteria tentatively adopted by Commission staff.

Summary

Sierra's Reply flatly mis-states some aspects of the KOLO-TV Opposition, concedes that an inaccurate antenna height had been proposed, and on the one hand insists that the interference study was "incorrectly done" (while providing no basis for that allegation), yet on the other hand proposes to substitute a different directional antenna that it claims would protect KQED. However, Sierra is in error; the modified DTV Channel 9 facilities it now proposes would continue to cause interference to KQED. If it is nevertheless deemed that KQED must accept such interference, then there is a technical rationale for allocating DTV Channel 9 to KOLO-TV, thus allowing the DTV transmitter to be in the same building as the lower-adjacent NTSC Channel 8 with which it must maintain a precise frequency relationship.

List of Figures

In carrying out these engineering studies, the following attached figures were prepared under my direct supervision:

1. New directional antenna pattern now proposed by Sierra and comparison to originally-proposed pattern
2. Interference study for revised DTV Channel 9 Slide Mountain facilities now proposed.

Dane E. Ericksen, P.E.

REGISTERED PROFESSIONAL ENGINEER
DANE E. ERICKSEN
No. 11654
Exp. 9-30-00
ELECTRICAL
STATE OF CALIFORNIA

October 15, 1997

Affidavit

State of California
County of Sonoma | ss:

Dane E. Ericksen, being first duly sworn upon oath, deposes and says:

1. That he is a qualified Registered Professional Engineer, holds California Registration No. E-11654, which expires on September 30, 2000, and is employed by the firm of Hammett & Edison, Inc., Consulting Engineers, with offices located near the city of San Francisco, California,

2. That he graduated from California State University, Chico, in 1970, with a Bachelor of Science Degree in Electrical Engineering, was an employee of the Field Operations Bureau of the Federal Communications Commission from 1970 to 1982, with specialization in the areas of FM and television broadcast stations and cable television systems, and has been associated with the firm of Hammett & Edison, Inc., since October 1982,

3. That the firm of Hammett & Edison, Inc., Consulting Engineers, has been retained by Stephens Group, Inc., licensee of Station KOLO-TV, NTSC Channel 8, Reno, Nevada, to prepare an engineering exhibit in support of a Response to the Reply comments of Sierra Broadcasting Company to the Opposition of KOLO-TV to the Sierra request that its DTV allocation be changed from D33 to D09,

4. That such engineering work has been carried out by him or under his direction and that the results thereof are attached hereto and form a part of this affidavit, and

5. That the foregoing statement and the report regarding the aforementioned engineering work are true and correct of his own knowledge except such statements made therein on information and belief and, as to such statements, he believes them to be true.

_____
Dane E. Ericksen, P.E.

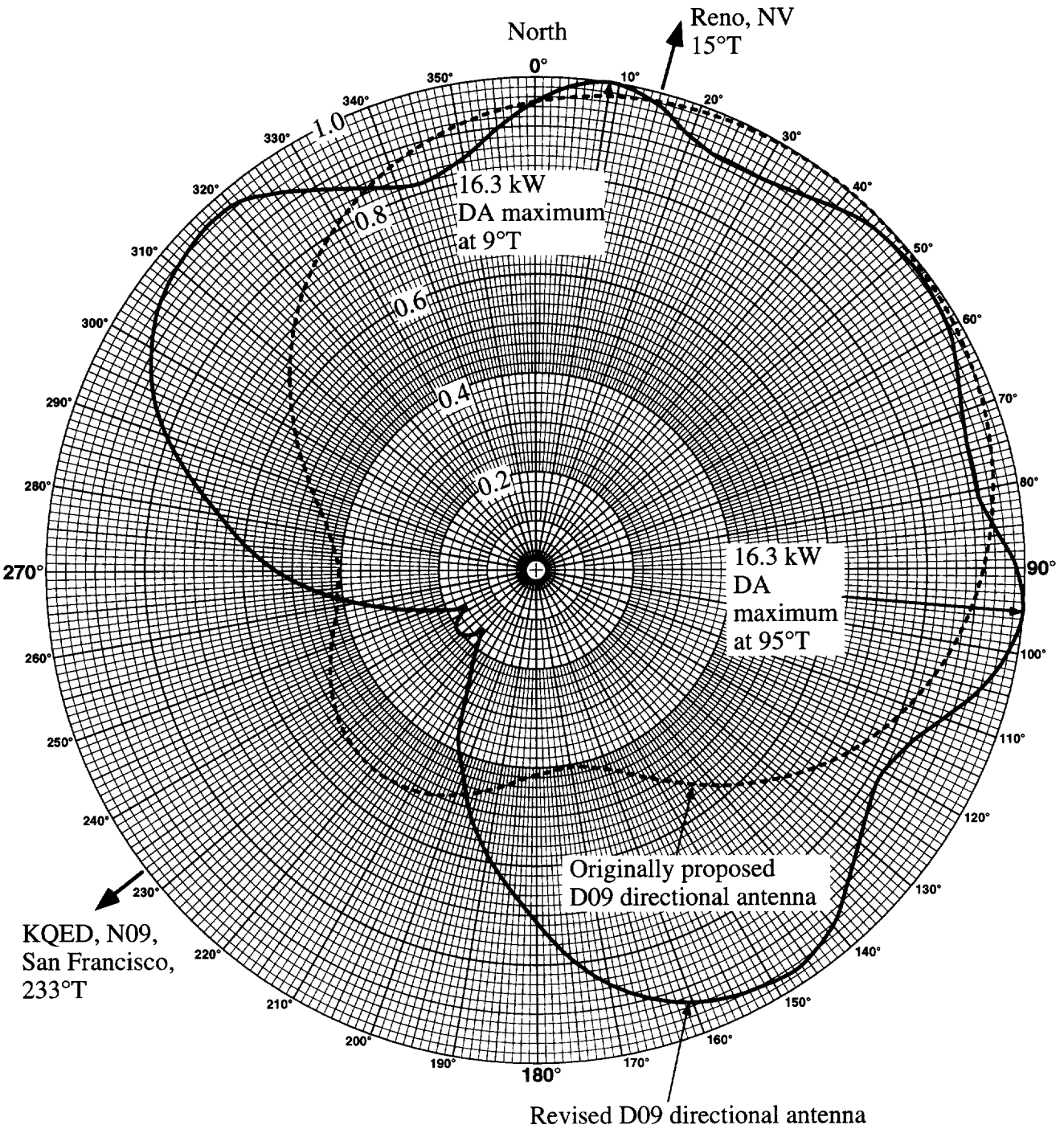
Subscribed and sworn to before me this 15th day of October, 1997

ORIGINAL COPY NOTARIZED

_____

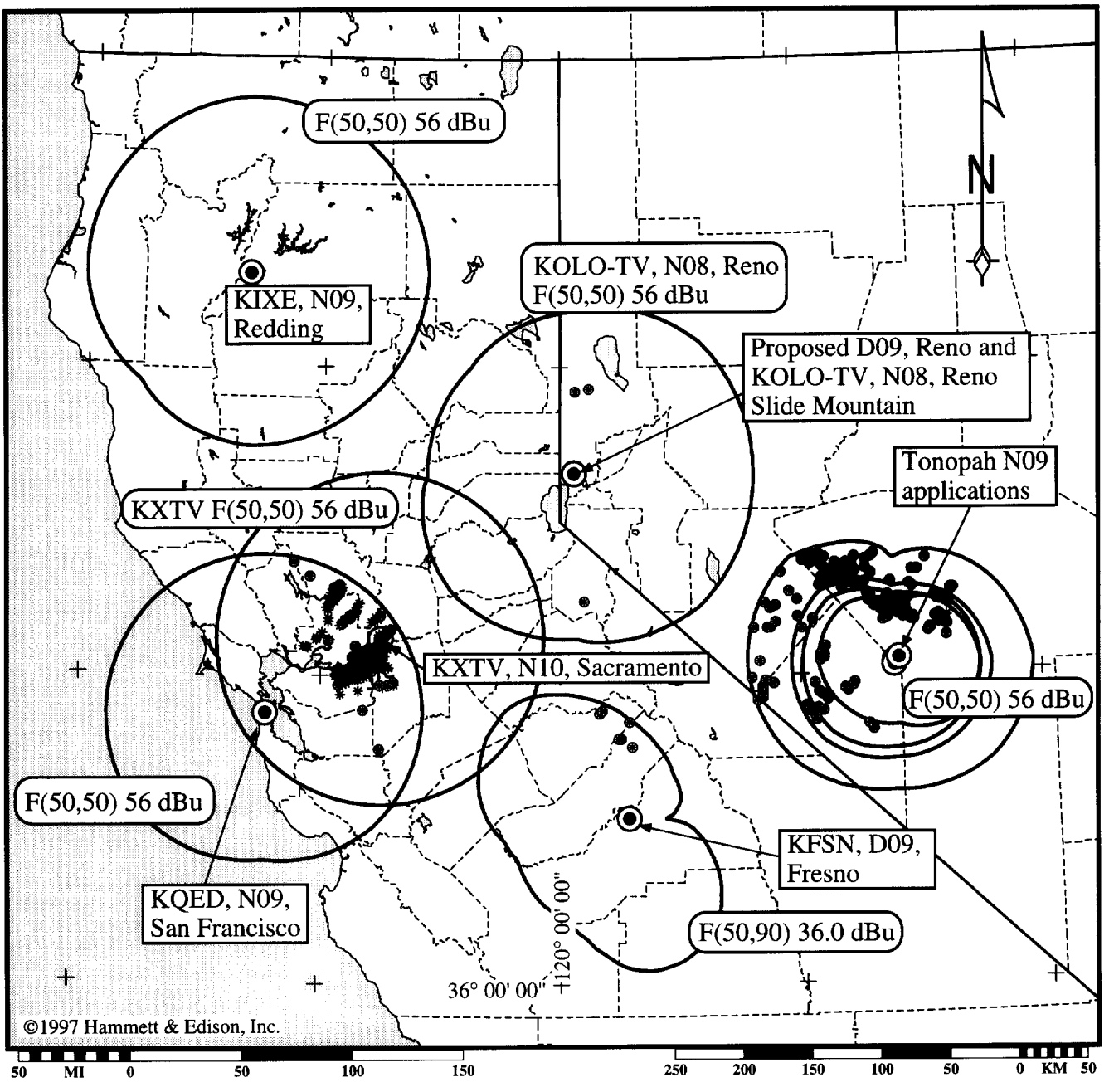
Station KOLO-TV • NTSC Channel 8 • Reno, Nevada

Revised Directional Antenna Pattern Proposed by TV Station KRNV, Channel N04, Reno, for D09 at Slide Mountain



Station KOLO-TV • NTSC Channel 8 • Reno, Nevada

Interference Conditions for Revised KRNV Proposal:
DTV Channel 9 at Slide Mountain
16.3 kW (DA) with C.O.R. = 2,964 m AMSL, 884 m HAAT
Harris DA Pattern No. 7272A01H



*= Interference (with population in cell)
●= Interference (without population in cell)

Geographic coordinate marks shown at 2-degree increments. Map data taken from Sectional Aeronautical Charts, published by the National Ocean Survey.

DTV.IXSTUDY™ Analysis Methodology

Implementation of FCC's Interference-Based Allocation Algorithm

On April 21, 1997, the Federal Communications Commission released its Sixth Report and Order to Mass Media Docket No. 87-268, establishing a final Table of Allotments for the transition from analog NTSC television service to a digital television ("DTV") service. The Commission utilized a complex set of computerized analysis tools to generate the DTV allotment table and added FCC Rules Section 73.623(b)(2), requiring that similar tools be employed to analyze individual DTV station assignments with regard to their potential interference to other DTV stations, DTV allotments, and existing or authorized NTSC facilities. Hammett & Edison has developed computer software to perform this function, based on an examination of the FCC software source code.

For any given NTSC or DTV station to be studied, the FCC analysis model first determines the location of the conventional F(50,50) Grade B contour of the NTSC station, or of the NTSC station associated with an assigned DTV station, using pattern information contained in the FCC engineering database and an assumed antenna elevation pattern. The model assumes that contour as an envelope, outside of which no protection from interference is implied or afforded. The location of the Grade B contour is also used to determine the assigned power for the DTV station, once again using conventional methods found in FCC Rules Section 73.699, Figures 9 and 10, but determining the power necessary on a radial basis to generate the associated DTV coverage contour (41 dBu for UHF, 36 dBu for high VHF Channels 7–13, and 28 dBu for low VHF Channels 2–6), for the assigned DTV channel. The maximum power determined using this method was assigned as the DTV operating power, provided it was calculated to be above established minimum power levels; otherwise, a minimum power level was assigned. Note that the use of this method usually creates a directional antenna pattern, even for DTV assignments to presently omnidirectional NTSC TV stations. The FCC requires that a DTV facility employ an antenna design that meets the calculated pattern, or that a nondirectional antenna be employed that does not exceed the directional pattern envelope in any direction, unless the creation of no new interference can be demonstrated.

In addition to the use of the Grade B envelope and an assumed directional transmitting antenna for all DTV facilities, the model assumes the use of directional receiving antennas at each studied location, or "cell." The characteristics of the receiving antennas are different not only for the low VHF, high VHF, and UHF frequency bands, but also for NTSC and DTV receiving situations, where, based on the FCC model, more directive antennas are employed for analysis of DTV reception.

The FCC analysis technique employs terrain-sensitive calculation methods based on Version 1.2.2 of the ITS Irregular Terrain Model, also known as the Longley-Rice model. For each NTSC or DTV station to be studied, a grid of cells, two kilometers on a side, fills the associated Grade B contour. The program first determines which of the cells is predicted to receive service from the associated station, using Longley-Rice with F(50,50) statistical weighting for NTSC stations and F(50,90) statistical weighting for DTV stations. Cells determined to have no service are not studied for interference from other stations.* Once cells having service are determined, the software analyzes potential interference from other NTSC or DTV stations, again using the Longley-Rice propagation algorithm and F(50,10) statistical weighting for all potential interfering signals. Each cell is evaluated using the desired-to-undesired ratios presented in FCC Rules Section 73.623 for each channel relationship, and cells determined to have interference are flagged and summed with the study results of other cells, resulting in the generation of total interference area figures and tabulations of total population contained within the summed cells.

The Hammett & Edison analysis software program employs all of the analysis features described above, as well as several other more subtle elements employed in the FCC allotment program. Additionally, the Hammett & Edison program provides a graphical element that allows the identification of all interference cells on a map with an associated tabulation, and the program generates a DTV antenna pattern envelope that shows areas that can be maximized without creating interference in any cells that were not already receiving interference. The program can be used to test implementation scenarios that involve changes to antenna height, antenna pattern, channel number, and transmitter location. Additionally, the program has the capability to determine coverage areas of DTV and NTSC stations, with interference cells omitted. The Hammett & Edison program can also identify cells that fall in major bodies of water, based on digitized map data, summarizing those cells separately in an interference study or excluding them from a coverage study. Arguably, cells in water do not require protection from interference.

* It is noted that the Longley-Rice model is not always capable of determining, within certain confidence limits, whether a particular cell has service. In such cases, the Longley-Rice algorithm returns an error code; the FCC method for handling such error codes is to assume the associated cells have interference-free service, and as such, are not considered further. This assumption is presently being scrutinized by Hammett & Edison to determine its validity and to identify possible situations where significant actual interference areas may be overlooked from station studies.